

What is claimed is:

1. A garment for measuring biological information formed of a nonconductive material having elasticity so as to fit on the upper body of an examinee,

5 the garment being characterized in comprising chest lead electrodes, formed of a conductive material capable of acquiring a heart potential at vicinity of chest part under a condition of less myoelectric influence regardless of individual difference of the heart position by forming the chest lead electrodes which cover from the body surface around the fourth rib to the body surface around the sixth rib when the examinee wears the garment and capable of delivering the potential to a cardiogram analysis device, the chest lead electrodes being arranged on the garment at least six positions from a position having a boarder with near presternal region of the examinee to vicinity of left chest lateral part.

2. A garment for measuring biological information formed of a nonconductive material having elasticity,

20 the garment being characterized in comprising chest lead electrodes, formed of a conductive material capable of acquiring a heart potential at vicinity of chest part when an examinee wears the garment, the chest lead electrodes having a length of more than 5 cm and less than 30 cm in a direction of the total length from vicinity of front center of the garment to vicinity of left side of the garment.

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3. A garment for measuring biological information formed of a nonconductive material,

the garment being characterized in comprising chest lead electrodes, formed of a conductive material capable of acquiring a heart potential at vicinity of chest part under a condition of less myoelectric influence regardless of individual difference of the heart position by forming the chest lead electrodes which cover from the body surface on the chest part when the examinee wears the garment and capable of

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delivering the potential to a cardiogram analysis device, the chest lead electrodes being arranged on the garment between near presternal region of the examinee and vicinity of left chest lateral part.

5 4. The garment according to any one of claims 1 through 3, wherein the garment is a shirt worn on the upper body of the examinee, the shirt further comprising four limb electrodes having dimensions so as to at least cover one of the body surface of near collar bones of the examinee and the body surface of near pelvis of the examinee and capable of
10 acquiring an electric potential and capable of delivering the potential to the cardiogram analysis device.

5. The biological information measuring garment according to any one of claims 1 through 4, wherein the garment further comprises at
15 least one chest electrode one of at a position from around presternal region of the examinee to a position near a side of right chest and a position from near a side of left chest to a position near the back, in addition to the chest lead electrodes.

20 6. A biological information measurement system comprising the garment according to any one of claims 1 through 5 and cardiogram analysis device, wherein the cardiogram analysis device comprises;
 electric potential information acquisition means for acquiring information on electric potentials based on electric potentials delivered
25 from a plurality of chest lead electrodes;
 electric potential comparison means for comparing amplitudes of the acquired electric potential information;
 electric potential selection means for selecting the chest lead electrodes detecting a larger amplitude as electric potential information to
30 be based on an output of cardiogram in accordance with the comparison result of the electric potential comparison means; and
 cardiogram analysis output means for outputting cardiogram data after analysis of the electric potential information detected by the selected

chest lead electrodes.

7. A cardiogram analysis device comprising:

electric potential information acquisition means for acquiring
 5 information on electric potentials based on electric potentials delivered
 from a plurality of the chest lead electrodes arranged on a garment for
 measuring biological information;

electric potential comparison means for comparing a plurality of
 amplitudes of the acquired electric potential information;

10 electric potential selection means for selecting the chest lead
 electrodes detecting a larger amplitude as electric potential information to
 be based on an output of cardiogram in accordance with the comparison
 result of the electric potential comparison means; and

cardiogram analysis output means for outputting cardiogram data
 15 after analysis of the electric potential detected by the chest lead
 electrodes being selected.

8. A computer readable program for performing a computer as a
 cardiogram analysis device, the program is operated by the computer as:

20 electric potential information acquisition means for acquiring
 information on electric potentials based on electric potentials delivered
 from a plurality of the chest lead electrodes arranged on a garment for
 measuring biological information;

electric potential comparison means for comparing a plurality of
 25 amplitudes of the acquired electric potential information;

electric potential selection means for selecting the chest lead
 electrodes detecting a larger amplitude as electric potential information to
 be based on an output of cardiogram in accordance with the comparison
 result of the electric potential comparison means; and

30 cardiogram analysis output means for outputting cardiogram data
 after analysis of the selected electric potential by the chest lead
 electrodes being selected.

9. The biological information measurement system, the
cardiogram analysis device or the program according to one of claims 6
through 8, wherein the cardiogram analysis output means further displays
the position of the chest lead electrodes detecting the selected electric
5 potential information correspondingly with a diagram of the examinee's
body.

10. The biological information measuring garment according to
any one of claims 1 through 9, wherein the garment comprises a
10 respiratory information measuring sensor, including a conductive member
varying its electric resistance according to variation of constitution of the
examinee through breathing thereof under a turning-on-electricity state
and capable of delivering electric information based on the variation of
electric potential to a respiratory information analysis device.

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11. The biological information measuring garment according to
claim 10, wherein the respiratory information measuring sensor is
disposed at least on one of a perimeter of the chest and a perimeter of
abdominal in the garment, and wherein electric resistance of the
20 respiratory information measuring sensor varies with expansion and
contraction of one of the length and cross-section of the conductive
member in response to the examinee's breathing.

12. The biological information measuring garment according to
25 one of claims 10 and 11, wherein for the respiratory information
measuring sensor, electric influence under a turning-on-electricity state to
the examinee is decreased by covering a surface of the conductive material
facing the body surface of the examinee and an opposed surface thereof
with a nonconductive material.

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13. The biological information measuring garment according to
any one of claims 10 through 12, wherein the conductive material of the
respiratory information measuring sensors is arranged at a plural

positions at least including one of a position winding around vicinity of chest of the examinee and a position winding around vicinity of abdominal of the examinee.

5 14. A biological information measuring system comprising the garment according to any one of claims 10 through 13 and a respiratory information analysis device, the respiratory information analysis device comprising;

 electric information acquisition means for acquiring information
10 on electricity delivered from the respiratory information measuring sensors;

 electric information comparison means for comparing a plurality of the acquired electric information;

 electric information selection means for selecting the respiratory
15 information measuring sensors detecting a larger amplitude as electric potential information to be based on an output of respiratory information in accordance with the comparison result of the electric information comparison means;

 respiratory information analysis means for judging a variation
20 cycle of the electric information detected with the respiratory information measuring sensors selected by the electric information selection means and analyzing respiratory information in accordance with the variation cycle; and

 respiratory information output means for outputting respiratory
25 information data in accordance with the analyzed respiratory information.

 15. A respiratory information analysis device comprising:

 electric information acquisition means for acquiring electrical
30 information delivered from a plurality of respiratory information measuring sensors arranged on a garment for measuring biological information;

 electric information comparison means for comparing a plurality of amplitudes of the acquired electric information;

electric information selection means for selecting the respiratory information measuring sensors detecting a larger amplitude as electric information to be based on an output of respiratory information in accordance with the comparison result of the electric information

5 comparison means;

respiratory information analysis means for judging a variation cycle of the electric information detected with the respiratory information measuring sensors selected by the electric information selection means and analyzing respiratory information in accordance with the variation
10 cycle; and

respiratory information output means for outputting respiratory information data in accordance with the analyzed respiratory information.

16. A computer readable program for performing a computer as a
15 cardiogram analysis device, the program is operated by the computer as:

electric information acquisition means for acquiring electric information delivered from a plurality of respiratory information measuring sensors arranged on a garment for measuring biological information, the acquisition means including a conductive material
20 varying its electric resistance according to variation of constitution of the examinee through breathing thereof under a turning-on-electricity state and capable of acquiring electric information based on the variation of electric potential and capable of delivering the information to a respiratory information analysis device;

25 electric information comparison means for comparing a plurality of the acquired electric information;

electric information selection means for selecting the respiratory information measuring sensors detecting a larger amplitude as electric information to be based on an output of respiratory information in
30 accordance with the comparison result of the electric information comparison means;

respiratory information analysis means for judging a variation cycle of the electric information detected with the respiratory information

measuring sensors selected by the electric information selection means and analyzing respiratory information in accordance with the variation cycle; and

respiratory information output means for outputting respiratory
5 information data in accordance with the analyzed respiratory information.

17. The respiratory information analysis system, the respiratory information analysis device or the program according to any one of claims 14 through 16, wherein the respiratory information analysis means
10 further acquires information on a variation cycle of the electric information and information on an R-wave height cycle related to a variation cycle of R-wave height information of cardiogram based on electric potentials delivered from the chest lead electrodes and selects cycle information of either one and analyzes respiratory information in
15 accordance with the selected cycle information.

18. The respiratory information analysis system, the respiratory information analysis device or the program according to claim 17, wherein the respiratory information analysis means further acquires information
20 on amplitude of the electric information and information on R-wave height amplitude related to amplitude of the R-wave height information and selects one of the electric information and the R-wave height information in accordance with comparison of the electric information and the R-wave height information and analyzes respiratory information in
25 accordance with the selected cycle information.

19. The respiratory information analysis system, the respiratory information analysis device or the program according to one of claims 17 and 18, wherein further the respiratory information analysis means
30 display one of a position of the chest lead electrodes and a position of the respiratory information measuring sensor detecting the selected information correspondingly with one of a diagram of the biological information measuring garment and a diagram of the examinee's body.

20. A method of controlling a cardiogram analysis device,
comprising the steps of:

- 5 acquiring information on electric potential in accordance with an
electric potential delivered from a plurality of chest lead electrodes formed
of a conductive material capable of acquiring a heart potential at vicinity
of chest part under a condition of less myoelectric influence regardless of
variation of the heart position of an examinee by forming the garment in a
length so as to cover the body surface of chest region of the examinee, the
10 lead electrodes arranged between near presternal region of the examinee
to vicinity of left chest lateral part;
comparing a plurality of amplitudes of the acquired electric
potential information;
selecting the chest lead electrodes detecting a larger amplitude as
15 electric potential information to be based on an output of cardiogram in
accordance with the comparison result; and
outputting cardiogram data after analysis of the electric potential
information detected by the chest lead electrodes being selected.

20 21. A method of controlling a respiratory information analysis
device comprising the steps of:

- acquiring electric information delivered from a plurality of
respiratory information measuring sensors capable of acquiring electric
information based on the variation of electric potential, the sensor
25 including a conductive material varying its electric resistance according to
variation of constitution of an examinee through breathing thereof under a
turning-on-electricity state;
comparing a plurality of amplitudes of the acquired electric
potential information;
30 selecting the respiratory information measuring sensors detecting
a larger amplitude as electric information to be based on an output of
respiratory information in accordance with the comparison result; and
outputting respiratory information data in accordance with the

analyzed respiratory information.